



1352.0.55.124 - Research Paper: Automated ARIMA Model Selection for Aiding Filter-Based Seasonal Adjustment (Methodology Advisory Committee), Jun 2012

Latest ISSUE Released at 11:30 AM (CANBERRA TIME) 22/10/2013 First Issue

Summary

About this Release

Filter based methods of seasonal adjustment of time series data can be enhanced by forecasting. Time series can be extended via seasonal ARIMA model forecasts to reduce the reliance on asymmetric filters at the end of the series and thus reduce future revisions to seasonal factor estimates. Manual selection of appropriate models can impose a large time burden on analysts who must periodically re-assess these models for a large number of time series. Therefore, automatic procedures of model selection are preferred. In this paper we present an empirical study to evaluate several methods of selecting seasonal ARIMA models for the specific purpose of aiding seasonal adjustment. Our aim is to identify a model selection method that gives forecasts that are most effective in minimising revisions to publish seasonally adjusted and trend estimates, as produced with the X12-ARIMA seasonal adjustment procedure. In so doing, we compare the efficacy of three methods of model selection, including those contained in the packages TRAMO (Gómez and Maravall, 1997) and X12-ARIMA (U.S. Census Bureau) and the R package forecast (Hyndman, 2012). We also trial an ad hoc methodology based on past experience, as developed within the Australian Bureau of Statistics. The alternative procedures are compared via a simulation study and are ultimately evaluated on a number of real world data sets.

[Download research paper here.](#)